

The Discovery of Eifelian Ammonoids in the Central Kyzylkum Desert (Aristantau Mountains, Uzbekistan)

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Abstract—Eifelian ammonoids are described for the first time from the Central Kyzylkum Desert (Uzbekistan, Navoiy Region, Aristantau Mountains). The ammonoid assemblage includes the typical Eifelian genera *Fidelites*, *Subanarcestes* (a new species *S. aristanensis* Nikolaeva sp. nov. is described), and *Cabrieroceras*, found in association with brachiopods, conodonts, and dacryoconarids. The ammonoid assemblage is similar to that from the Choteč beds of Barrandien and their equivalents in the Urals, Salair, Germany, and Morocco (*Subanarcestes macrocephalus* Zone), suggesting a connection between the Eifelian Kyzylkum Basin, which was part of the Turkestan Paleoocean, and European, North African, Siberian, and Uralian basins. The ammonoids studied are not associated with black shale and apparently existed in normal marine environments.

Keywords: ammonoids, Devonian, Eifelian, Choteč, Uzbekistan, Kyzylkum, *Subanarcestes*, *Fidelites*

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INTRODUCTION

No Eifelian ammonoids previously been described from the Central Kyzylkum. Data on ammonoids from the Iza Formation of the Aristantau Mountains (Uzbekistan, Navoiy Region) have been limited to infrequent mentions in stratigraphic papers (Bogoslovsky, 1982; Cherkashenko et al., 1989) and unpublished reports of the Geological Survey. In recent years, sections containing ammonoids were re-examined by the present authors, which allowed of the age of the host rocks to be updated and new fossils collections, including ammonoids, to be assembled. The studied ammonoids come from the fourth (upper) member of the Iza Formation and the lowermost horizons of the overlying Ayakkuduk Formation, where they are found together with brachiopods, conodonts, and dacryoconarids (Fig. 1).

The Iza Formation was recognized for the first time in the southwest of the Aristantau Mountains by N.M. Larin (Cherkashenko et al., 1989; *Stratigraficheskii...*, 2001) (section 26 kz in Fig. 1). The formation is developed over the entire territory of the Aristantau Mountains and is represented by outcrops of carbonates in tectonic blocks within the Aristantau

Syncline. The Iza Formation is readily recognized by the abundant presence of large amount of black chert in lenses and layers (Bukharin et al., 1985), overlying the Madaniyat Formation and overlain by the Ayakkuduk Formation. Ammonoids are found in almost all studied sections including the stratotype section in the southern wing of the Aristantau Syncline (the total thickness of the formation is 700 m in Section 26kz, Fig. 1), and in the more condensed sections in the north of the syncline where the Iza Formation overlies the Dzhengeldin Formation over a tectonic contact (total thickness 200–360 m in Sections 29 kz and VI-VI, Fig. 1) (Cherkashenko et al., 1989).

The Ayakkuduk Formation was established by Larin (in Cherkashenko et al., 1989); it is represented by gray algal, stromatolite-like, brecciated, and dolomitic limestone with many bioherms, especially in the middle and upper parts. The formation is developed in the wings and in the central part of the Aristantau Syncline, overlies the Iza Formation and is overlain by the Beshashchik Formation (Abduazimova, 2001). Ammonoids are found in outcrops of the central part of the syncline, in the lowermost horizons of the for-